REPORT

GERMAN RESTAURANTS IN NEW YORK

BY FABIAN BUDER

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BACKGROUND & MOTIVATION

Clearly define a problem or an idea of your choice, where you would need to leverage the Foursquare location data to solve or execute. Remember that data science problems always target an audience and are meant to help a group of stakeholders solve a problem, so make sure that you explicitly describe your audience and why they would care about your problem.

New York is said to be one of the most exciting cities in the world. Within an area of around 300 square miles live 8.40 million people making New York also one of the most crowded places in the US. Being the dream destination for immigrants from all over the globe, New York is having an almost infinite number of restaurants serving every cuisine one can image. Even though an overall GMP of about two trillion US dollars seems like a huge potential for businesses, the market in New York is already fairly saturated and high real estate prices leave no space for the weak, at least not in the hot spots of the city where the money lies.
For a group of investors I analyze the restaurant scene in the city "that never sleeps" to check the potential for a new German restaurant and get a first idea of what would be potential locations for such a restaurant where it would not hit too much direct competition.

DATA & METHODS

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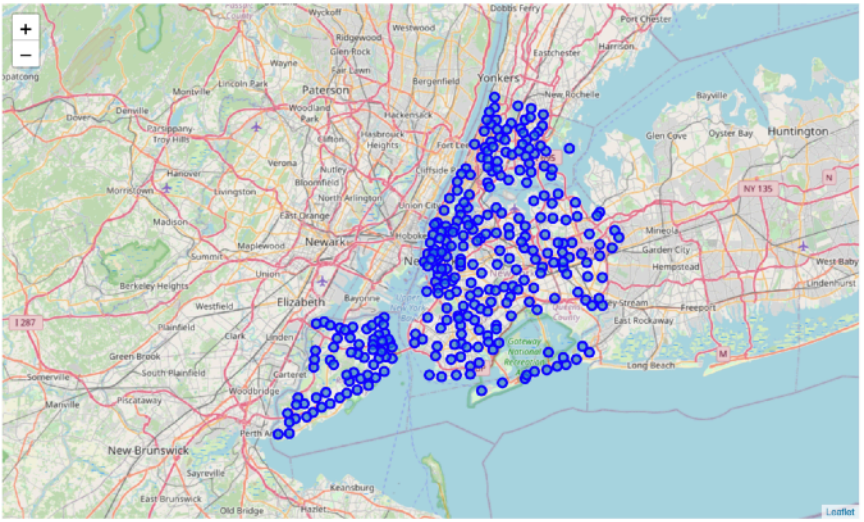
DATA ANALYSIS & RESULTS

To get started, I first need a dataset that contains the basic information about New York, the coordinates of the neighborhoods in New York that I want to check for the best place to open a new German restaurant.

New York has a total of 5 boroughs and 306 neighborhoods. In order to identify those neighborhoods in the Foursquare database later, I need a a data set that contains the 5 boroughs and the neighborhoods in them together with the geodata (latitude and logitude coordinates). I download a GEOJSON file with the information from the website https://geo.nyu.edu/catalog/nyu_2451_34572.

The relevant information in the GEOJSON file is a list of the neighborhoods in New York. The informaiton is stored in the features key. To transfer that information in a Pandas dataframe for the data analysis, I first store the information in a variable.

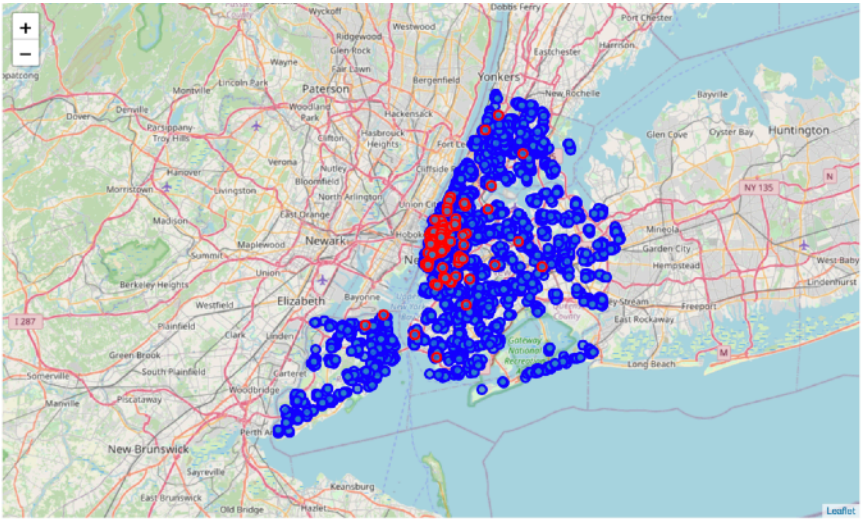
In the next step I simply transfer the variable into a pandas dataframe. Now that I have a complete list of the neighborhoods in New York, let's have a look at a map of the city and the neighborhoods in it.



Adding location data using the Foursquare Places API. To understand the competition in New York, I add the location of restaurants to the dataset.

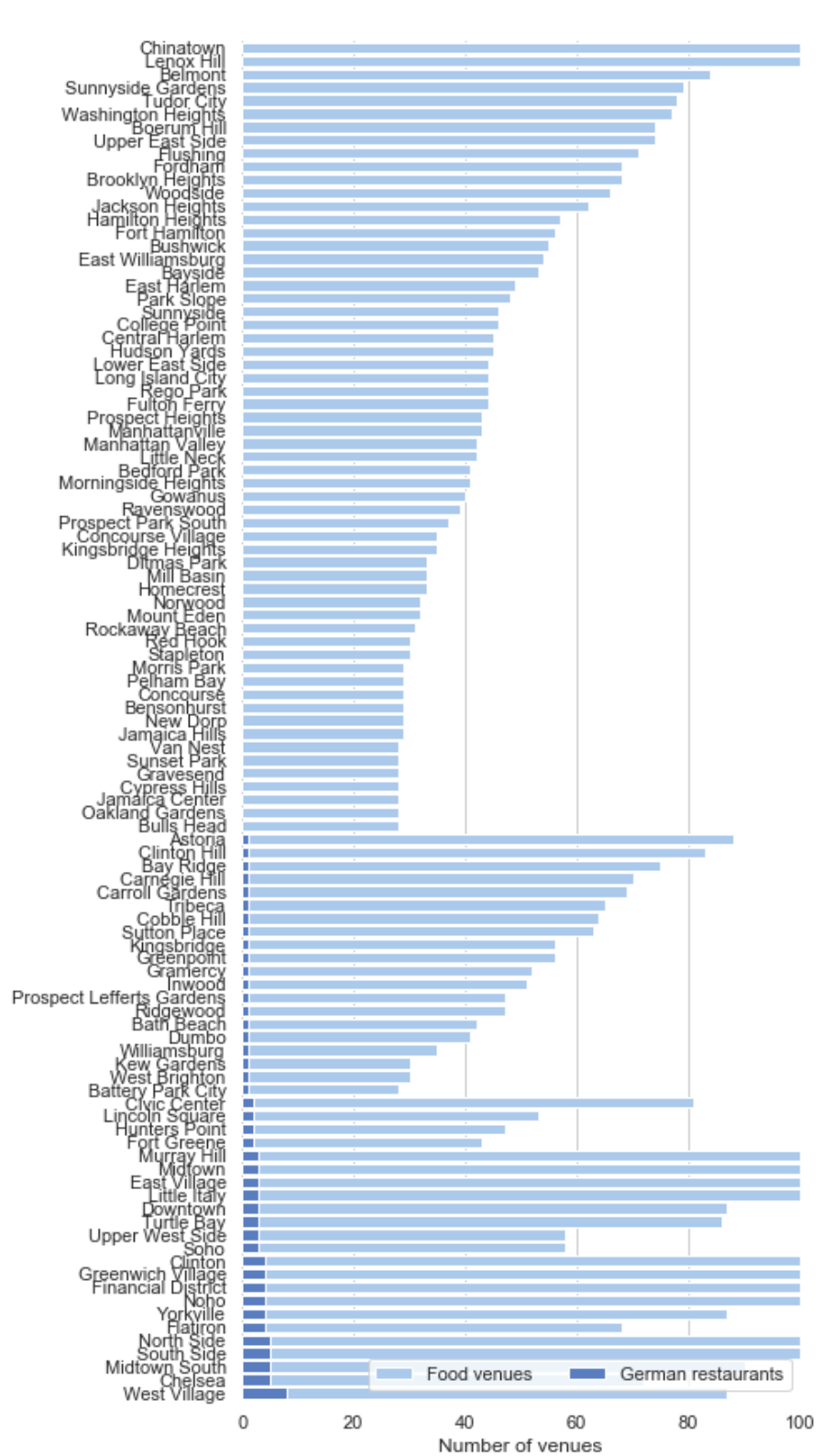
The map is good way to get an overview over neighborhoods where a certain amount of restaurants already exist, indicating that there is a customer demand for restaurants in this area and where at the same time the number of german restaurants is low or even zero.

For a better overview, I will provide a table with the necessary information on neighborhood level that allows to go into an onsite location checking phase to find the right place.



For a better overview over the neighborhoods I also prepared a bar-chart diagram on the following page.

The analysis shows that there are a lot of neighborhoods in New York that have a large number of food venues, indicating that there is a certain demand for food venues and restaurants in these areas while there is no German restaurant - at least no one that Foursquare would recommend based on the user tips.


Chinatown
Lenox Hill
Belmont
Sunnyside Gardens
Tudor City
Washington Heights
Boerum Hill
Upper East Side
Flushing
Fordham
Brooklyn Heights
Woodside
Jackson Heights
Hamilton Heights
Fort Hamilton
Bushwick
East Williamsburg
Bayside
East Harlem
Park Slope
Sunnyside
College Point
Central Harlem
Hudson Yards
Lower East Side
Long Island City
Rego Park
Fulton Ferry
Prospect Heights
Manhattanville
Manhattan Valley
Little Neck
Bedford Park
Morningside Heights
Gowanus
Ravenswood
Prospect Park South
Concourse Village
Kingsbridge Heights
Ditmas Park
Mill Basin
Homecrest
Norwood
Mount Eden
Rockaway Beach
Red Hook
Stapleton
Morris Park
Pelham Bay
Concourse
Bensonhurst
New Dorp
Jamaica Hills
Van Nest
Sunset Park
Gravesend
Cypress Hills
Jamaica Center
Oakland Gardens
Bulls Head
Astoria
Clinton Hill
Bay Ridge
Carnegie Hill
Carroll Gardens
Tribeca
Cobble Hill
Sutton Place
Kingsbridge
Greenpoint
Gramercy
Inwood
Prospect Lefferts Gardens
Ridgewood
Bath Beach
Dumbo
Williamsburg
Kew Gardens
West Brighton
Battery Park City
Civic Center
Lincoln Square
Hunters Point
Fort Greene
Murray Hill
Midtown
East Village
Little Italy
Downtown
Turtle Bay
Upper West Side
Soho
Clinton
Greenwich Village
Financial District
Noho
Yorkville
Flatiron
North Side
South Side
Midtown South
Chelsea
West Village
Food venues
German restaurants
0
20
40
60
80
100
Number of venues

DISCUSSION

This analysis provides a list of areas with a high density of food venues and low number of German restaurants as a starting point for a further, more customer oriented analysis of the areas.

While this is this list and the maps are good starting point to look for ares with high potential for a German restaurant there are certain limitation due to the used dataset. The approach of looking for venues in a certai range around a given geo may lead to incomplete lists of venues. Focussing only on recommended venues also may shorten the list. Nonetheless - if we aim for a restaurant with a great customer experience, low-rated restaurants nearby may be no real competition.

Further research is needed to analyse the buying power and cultural orientation in the neighborhoods to find the perfect place for a new restaurant. Some of the neighborhoods that have no German restaurant may have none for a reason - from a naive perspective for example China Town may not be the first place to think about opening a German restaurant.

CONCLUSION

This test case led to some nice maps and already produced some good results. Real world use cases would probably work with clearer expectations towards the right spot for a new branch and allow to search more goal oriented. Also some of the limitations of the dataset may be corrected by adding additional resources into programming.

Thank you for reviewing my work. I enjoyed the course but I also clearly see that way more training is necessary to get used to the Python language and work way faster and more efficient.